CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

For Immediate Release

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CIRM Applauds the Reprogramming of Pancreas Cells to Produce Insulin
Saying It Points to the Value in Pursuing All Research Paths in Regenerative Medicine

SAN FRANCISCO, Calif., August 28, 2008 – The California Institute for Regenerative Medicine (CIRM), the state stem cell agency, issued the following statement regarding the research published today in *Nature* by a team from Harvard that showed it is possible to take a type of adult pancreas cell that doesn't normally produce insulin and reprogram them to produce insulin.

CIRM applauds the creativity and value in the research reported and shares the excitement in the promise it might hold. However, it emphatically refutes assertions by opponents of embryonic stem cell research that this new study proves embryonic stem cell research is not necessary. In fact, the Harvard study poignantly points out the value of embryonic stem cell research.

Asked if his new findings eliminate the need for work with hESC and iPS cells, the lead Harvard researcher, Doug Melton, said: "This is a point I want to stress: We are continuing to do research using human embryonic stem cells and iPS cells. We would not be where we are today without having worked with human embryonic stem cells. These unique cells provide a window into human development, and disease development, that is needed if we are to make further progress in understanding and treating chronic diseases. They remain the key to long-term progress in regenerative medicine."

The research reported in Nature is a major advance but it has significant limitations. It can be considered a type of gene therapy and has many of the same limitations and concerns that have been identified in the field of gene therapy. The genes that reprogrammed the cells were carried into the cells by adenoviruses, which have caused severe immune reactions in gene therapy. The mice in this study were immune compromised mice, so that complication was not seen in this model, but to-date has proven difficult to overcome in humans.

The cells that were reprogrammed in this study were relatively similar to insulin producing cells already; they and insulin producing cells both develop from a common precursor cell. For many diseases for which stem cell therapy holds out hope of major therapeutic advances, such similar neighboring cells may not exist or may not respond in a similar manner.

Melton's work was clearly fostered by knowledge gained from embryonic stem cell research and from the reprogramming of skin cells to by embryonic-like stem cells, so called induced Pluripotent Stem Cells (iPS). The paper is an eloquent example of value in, and critical need for, pursuing all avenues of regenerative medicine. The knowledge gained by being able to watch cells mature from the embryonic state to functional neurons, pancreatic cells, or heart muscle will accelerate all efforts to find cures for the Parkinson's patients, diabetics, and heart failure victims that so desperately need those cells functioning well.

About CIRM CIRM was established in early 2005 with the passage of Proposition 71, the California Stem Cell Research and Cures Act. The statewide ballot measure, which provided $3 billion in funding for stem cell research at California universities and research institutions, was overwhelmingly approved by voters, and called for the establishment of an entity to make grants and provide loans for stem cell research, research facilities, and other vital research opportunities. To date, the CIRM governing board has approved 229 research and facility grants totaling more than $614 million, making CIRM the largest

source of funding for human embryonic stem cell research in the world. For more information, please visit www.cirm.ca.gov.